C17

ECL Comfort
User's Guide

087R8414
VIKT0102

Danfoss

VI.KT.O1.02
2008.07
www.danfoss.com

Installer's Guide

ECL Comfort
Installer's Guide

C17

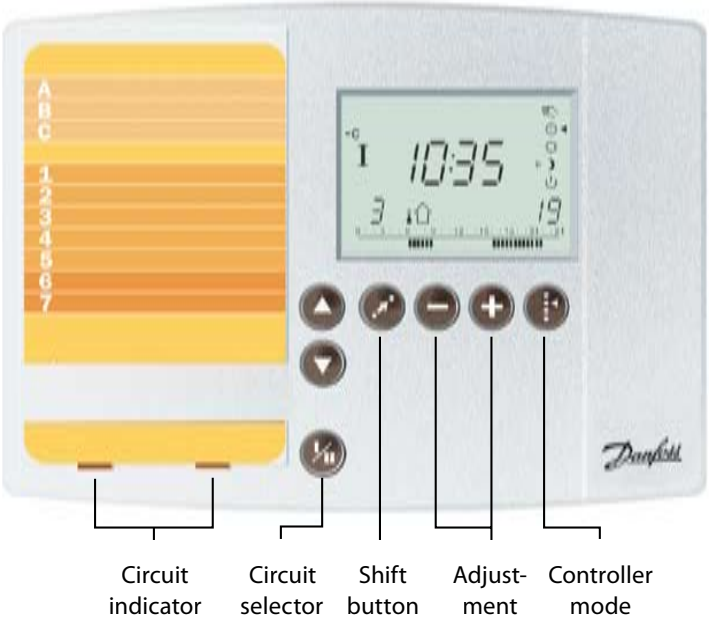
Domestic hot-water (DHW) controller

VI.KT.O1.02
2008.07
www.danfoss.com

087R8414
VIKT0102

Danfoss

User's Guide



Controller mode

- Manual operation (used only at maintenance and service)
- Scheduled operation
- Constant comfort temperature
- Constant saving temperature
- Standby mode

Arrow buttons. Switch between the lines of the ECL Card.

Shift button. Switches between temperatures, changeover points etc.

Adjust temperatures and values etc.

Circuit selector for switching between the circuits.

Display indications, controlled units, C17

1 ON A	1 ▼ B	2 ON C	3 ON D	
A: P1	Blank = OFF		ON = ON	
B: M1	▲ = Opens		▼ = Closes	
C: P2	Blank = OFF		ON = ON	
D: P3	Blank = OFF		ON = ON	

Safety Note

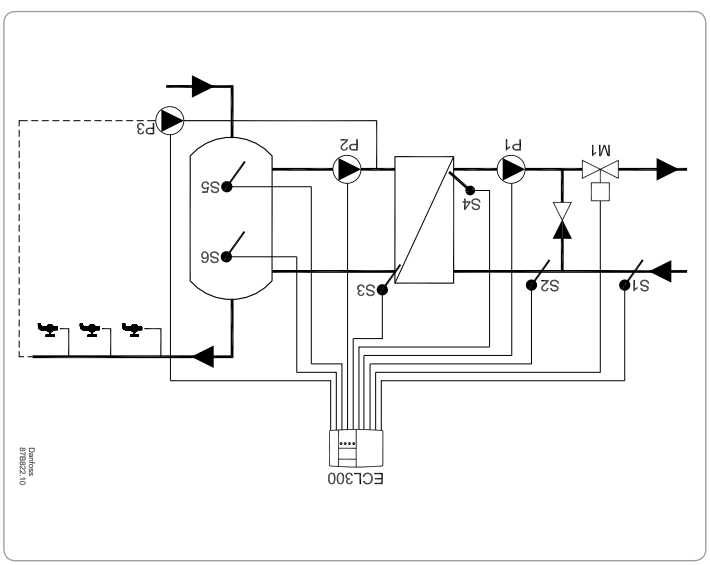
To avoid injury of persons and damages to the device, it is absolutely necessary to read and observe these instructions carefully.
Necessary assembly, start-up, and maintenance work must be performed by qualified and authorized personnel only.

This guide is associated with ECL Card 087B4730

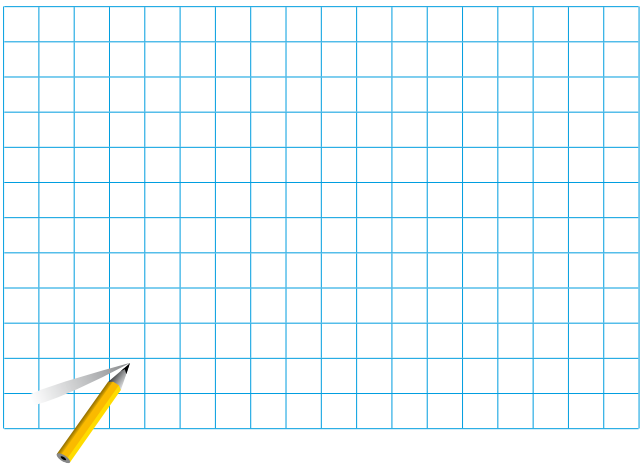
Installer:

By:

Date:



The shown diagram is a fundamental and simplified example and does not contain all components that are necessary in a system.



If the system you are about to install differs from the shown diagram of a standard system, feel free to sketch an outline for comparison. Adaptation of systems, see section 10.

List of components:

ECL Comfort 300

S1	Supply temperature sensor
S2	DHW charging temperature sensor
S3	DHW temperature sensor
S4	Return temperature sensor
S5	Lower tank temperature sensor
S6	Upper tank temperature sensor
P1	Circulation pump, primary circuit
P2	DHW charging pump
P3	DHW circulation pump
M1	Motorized control valve

Table of Contents

Sections in the Installer's Guide
The documentation for the ECL Comfort controller is composed of numbered sections. Only sections relevant to your ECL Comfort controller are included here.

Before you start

Installation

10 Identifying the system type
11 Mounting the ECL Comfort controller
12 Electrical connections 230 V a.c.
14 Connecting and placing the temperature sensors
15 Inserting the ECL Card

Basic Set-up

16 Adjusting the ECL Card settings
17 Setting the time and date - line A
18 Monitoring temperatures and system units - line B
19 Manual control - line B
20 Monitoring temperatures and system units - line B
26 Control parameters - lines 4-7
27 Cut-in and cut-out temperature at DHW charging - lines 1-2

Control & Overviews

29 Check list
30 ECL Card settings
31 Service parameters

Extended Service

32 Adjusting the service parameters

Miscellaneous

34 Copying with the ECL Card

User's Guide (turn the guide over for sections 1-7)

1 Choose your favorite display
2 Select circuit mode
3 Set your DHW charging temperature
4 Set your personal schedule
5 Advantages of the ECL Card
6 Hot points
7 Definitions

Disposal instruction:

This product should be dismantled and its components sorted, if possible, in various groups before recycling or disposal.

Always follow the local disposal regulations.

Before you start

Sketch your application

The ECL Comfort controller series is designed for a wide range of heating, domestic hot-water (DHW) and cooling systems with different configurations and capacities.
If your system differs from the diagrams shown in section 10, you may want to make a sketch of the system about to be installed. This makes it easier to use the Installer's Guide, which will guide you step-by-step from installation to final adjustments before the end-user takes over.

The controller is pre-programmed with factory settings that are shown in the relevant sections of this guide.

However, you might come across some settings that are not listed in this instruction. These settings could be related either to recent updates or the use of optional modules (which are described in the instructions in question).

How to use this guide

This guide is divided into two parts:
- User's Guide: Yellow sections 1-7
- Installer's Guide: Grey sections 10 and onwards

The application **C17** is very flexible. These are the basic principles:

Typically, the tank temperature (S6) is adjusted according to your requirements. The charging temperature sensor (S2) is the most important sensor. The desired charging temperature at S2 is set in the ECL controller (line C, yellow side).
If the measured DHW temperature (S6) is lower than the desired charging temperature minus the cut-in difference, charging starts. The charging pump, P2, is switched ON.
When the measured DHW temperature (S5) is higher than the desired charging temperature minus the cut-out difference, charging stops.

The motorized control valve (M1) is opened gradually when the charging temperature is lower than the desired charging temperature and vice versa.

Typically, the return temperature (S4) to the district heating supply should be as low as possible. If not so, the desired charging temperature can be adjusted.

The S1 temperature can correct the proportional band (Xp). Typically, the Xp must be increased at a rising S1 temperature.

The S3 temperature gives a feedback to the DHW charging temperature (S2). If the S3 temperature is too low, the desired temperature at S2 will be increased.

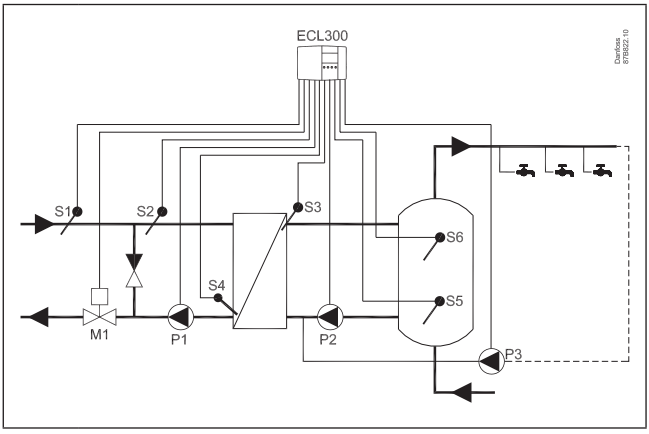
10a Identifying the system type

The ECL Comfort controller is a universal controller that can be used for various systems. Based on the shown standard systems, it is possible to configure additional systems.

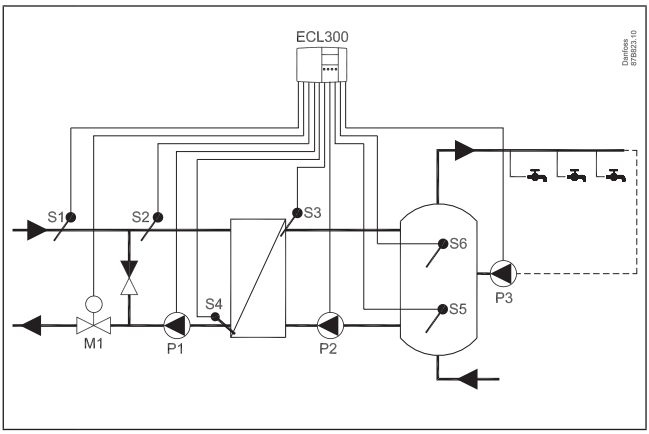
In this section you find the most frequently used systems. If your system is not quite as shown below, find the diagram which has the best resemblance with your system and make your own combinations.

The functions can only be realized with ECL Comfort 300 and as of controller version 1.08.

10.1 Full installation, external DHW circulation

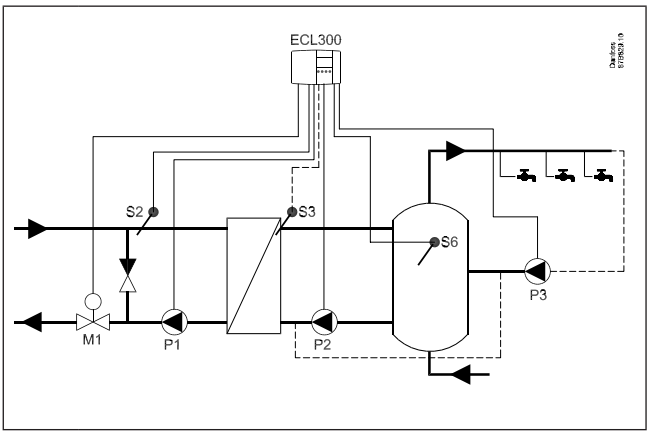


10.2 Full installation, internal DHW circulation

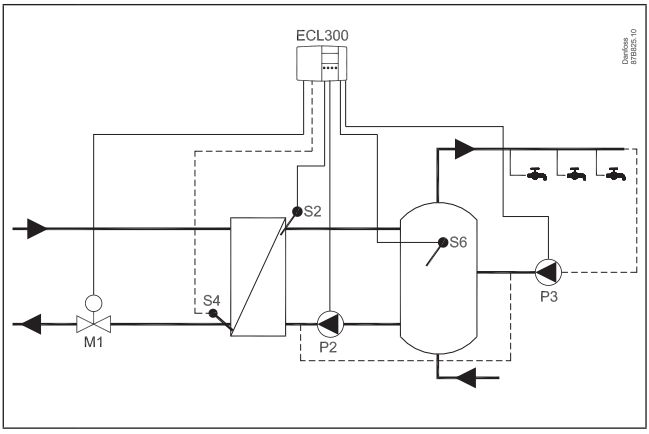


System diagrams in this instruction are principal drawings and do not contain all components which are necessary in your systems.

10.3 Minimum installation



10.4 Minimum installation, district heating



System diagrams in this instruction are principal drawings and do not contain all components which are necessary in your systems.

11a Mounting the ECL Comfort controller

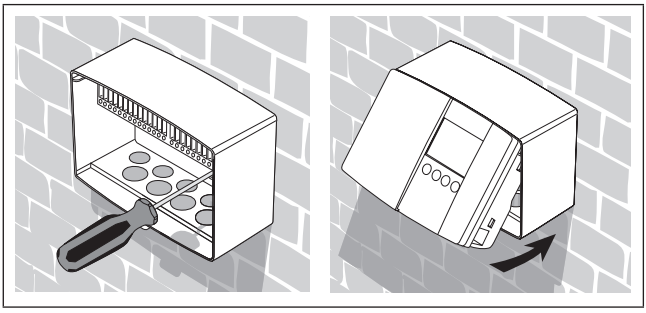
For easy access, you should mount the ECL Comfort controller near the system. Select one of the three following methods:

- Mounting on a wall
- Mounting on a DIN rail
- Mounting in a panel

Screws and rawlplugs are not supplied.

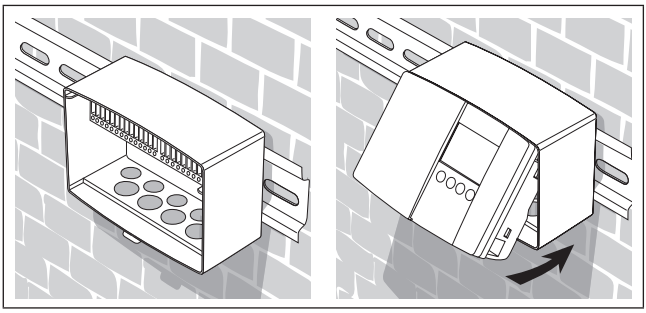
Mounting on a wall

Socket for mounting on wall: Order code No. 087B1149.
Mount the terminal box on a wall with a smooth surface. Establish the electrical connections and position the controller in the box. Secure the controller with the fixing screw.



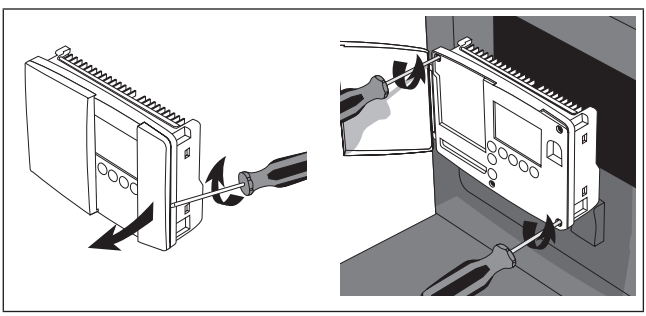
Mounting on a DIN rail

Mounting kit: Order code No. 087B1145.
A mounting kit is necessary to mount the box with the controller on a DIN rail.

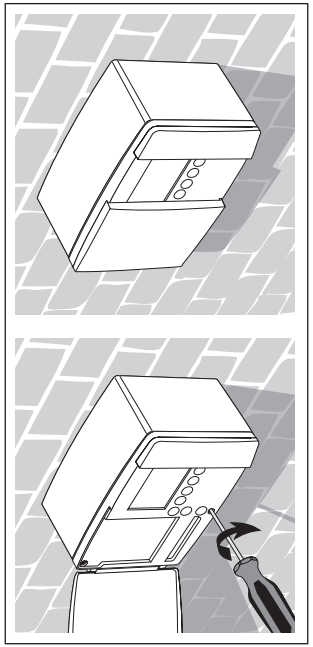


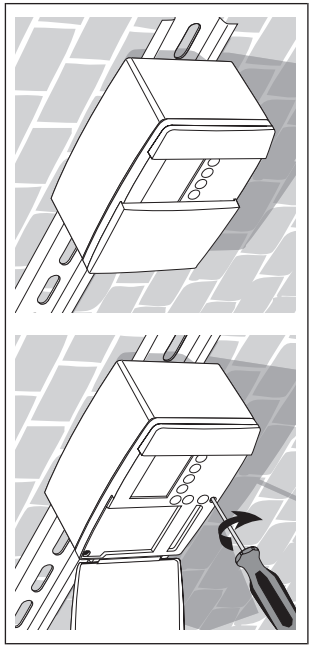
Mounting in a panel

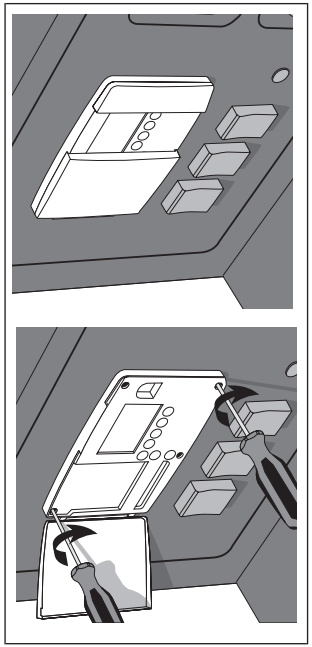
Connector set: Order code No. 087B1148.
The panel plate thickness must not exceed 3 mm.
Prepare a cut-out with the dimensions 93 x 139 mm. Pull off the right side of the lid by means of a screwdriver.
Insert the controller into the panel cut-out and fix it with the two locks which are placed diagonally in two corners of the controller.



11b

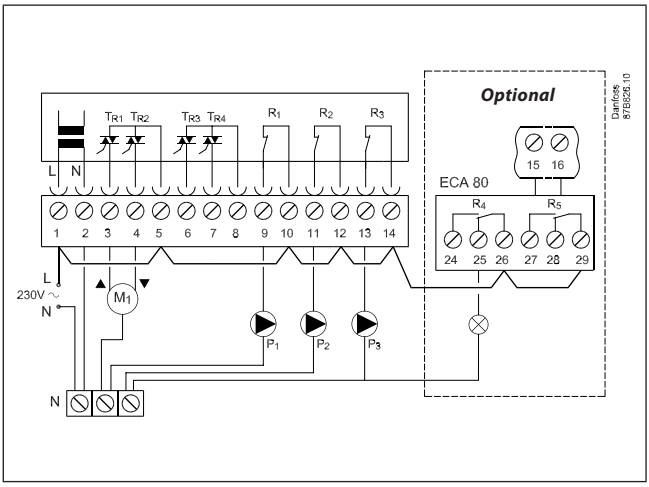






12a Electrical connections - 230 V a.c. - in general

230 V a.c connections



Terminal	Description	Max. load
1 L	Supply voltage 230 V a.c.	
2 N	Supply voltage 230 V a.c.	
3 M1	Actuator - open	0.2 A / 230 V a.c.
4 M1	Actuator - close alt. thermo actuator	0.2 A / 230 V a.c.
5	230 V a.c. supply voltage for M1	
6	Not to be used. Do not establish any connections!	
7		
8		
9 P1	Circulation pump, primary circuit	4 (2) A / 230 V a.c.
10	230 V a.c. supply for pump relay R1	
11 P2	DHW charging pump	4 (2) A / 230 V a.c.
12	230 V a.c. supply for pump relay R2	
13 P3	DHW circulation pump	4 (2) A / 230 V a.c.
14	230 V a.c. supply for pump relay R3	

Option:
Relay module ECA 80 (contacts: max. load 4 (2) A / 230 V a.c.)
25 (R4) Alarm relay output

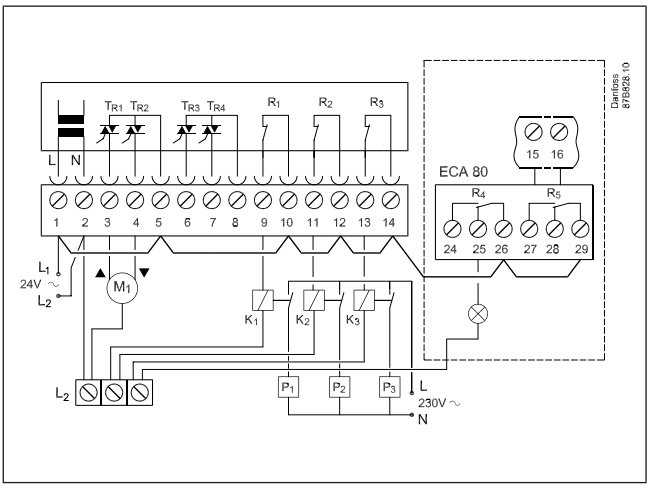
Wire cross section: 0.75 - 1.5 mm^2

Electrical connections
Max. 2 x 1.5 mm^2 wires can be inserted into each screw terminal.

Incorrect connection can damage the TRIAC outputs. Max. load (terminals 3, 4, (6 and 7)) 0.2 A / 230 V a.c.!

13a Electrical connections - 24 V a.c. - in general

24 V a.c. connections



Terminal	Description	Max. load
1 L1	Supply voltage 24 V a.c.	
2 L2	Supply voltage 24 V a.c.	
3 M1	Actuator - open	1 A / 24 V a.c.
4 M1	Actuator - close alt. thermo actuator	1 A / 24 V a.c.
5	24 V a.c. supply voltage for M1	
6	Not to be used. Do not establish any connections!	
7		
8		
9 K1	Relay for circulation pump, primary circuit	4 (2) A / 24 V a.c.
10	24 V a.c. supply for K1	
11 K2	Relay for DHW charging pump	4 (2) A / 24 V a.c.
12	24 V a.c. supply for K2	
13 K3	Relay for DHW circulation pump	4 (2) A / 24 V a.c.
14	24 V a.c. supply for K3	

Option:
Relay module ECA 80 (contacts: max. load 4 (2) A / 24 V a.c.)
25 (R4) Alarm relay output

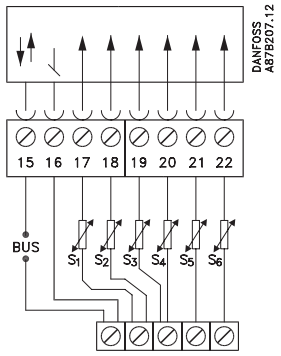
Wire cross section: 0.75 - 1.5 mm^2

Electrical connections
Max. 2 x 1.5 mm^2 wires can be inserted into each screw terminal.

Incorrect connection can damage the TRIAC outputs. Max. load (terminals 3, 4, (6 and 7)) 1 A / 24 V a.c.!

14a Connecting and placing the temperature sensors

Connecting the temperature sensors and the bus



Terminal	Description		Type (recomm.)
15 and 16		System device bus*	
17 and 16	S1	Supply temperature sensor	ESM-11 / ESMC / ESMU
18 and 16	S2	DHW charging temperature sensor	ESM-11 / ESMC / ESMU
19 and 16	S3	DHW temperature sensor	ESM-11 / ESMC / ESMU
20 and 16	S4	Return temperature sensor	ESM-11 / ESMC / ESMU
21 and 16	S5	Lower tank temperature sensor**	ESM-11 / ESMC / ESMU
22 and 16	S6	Upper tank temperature sensor**	ESM-11 / ESMC / ESMU

* *The system device bus is only active when the address 15 (line 199) is chosen.*

** *If only one DHW temperature sensor is used, it must be connected to terminal 22 as S6.*

Establish the jumper from 16 to common terminal.

Wire cross section for sensor connections:
Min. 0.4 mm^2

Total cable length: Max. 125 m (all sensors incl. system device bus)

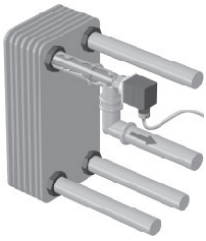
Cable lengths of more than 125 m may cause noise sensibility (EMC).

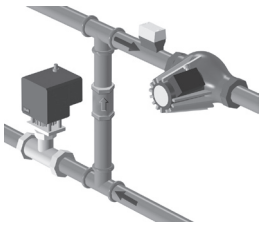
It is important that the sensors are mounted in the correct position in your system.

The temperature sensor mentioned below are sensors used for the ECL Comfort 200 and 300 series which not all will be needed for your application!

Outdoor temperature sensor (ESMT)
The outdoor sensor should be mounted on that side of the building where it is less likely to be exposed to direct sunshine. It should not be placed close to doors, windows or air outlets.

Flow temperature sensor (ESMU, ESM-11 or ESMC)
Place the sensor max. 15 cm from the mixing point. In systems with heat exchanger, Danfoss recommends that the ESMU-type to be inserted into the exchanger flow outlet.

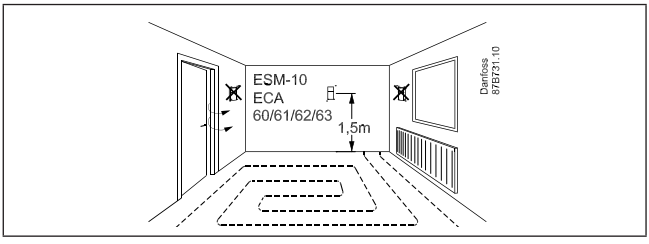




Make sure that the surface of the pipe is clean and even where the sensor is mounted.

Return temperature sensor (ESMU, ESM-11 or ESMC)
The return sensor should always be placed in / on a pipe with return water flow.

Room temperature sensor (ESM-10, ECA 60 / 62 room panel or ECA 61 / 63 remote control)
Place the room sensor in the room where the temperature is to be controlled. Do not place it on outside walls or close to radiators, windows or doors.



DHW temperature sensor (ESMU or ESMB-12)
Place the DHW temperature sensor according to the manufacturer's specification.

Boiler temperature sensor (ESMU, ESM-11 or ESMC)
Place the sensor according to the boiler manufacturer's specification.

Flow / air duct temperature sensor (ESM-11, ESMB-12, ESMC or ESMU types)
Place the sensor so that it measures a representative temperature.

Slab temperature sensor (ESMB-12)
Place the sensor in the slab.

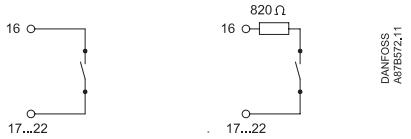
Valid for ESM-11: Do not move the sensor after it has been fastened in order to avoid damage to the sensor element.

Override

For an active override, you have to choose the mode "scheduled operation"! Input S1 ... S6 (ECL Card C14 only uses S5) can be used for override purposes (section 32, line 141).

Connection example without ECA 9010

If the override switch has goldplated contacts, you can choose one of the following solutions or a combination of both:



(C14 = 21 only)

Closed switch:
Comfort temperature

Open switch:
Scheduled operation

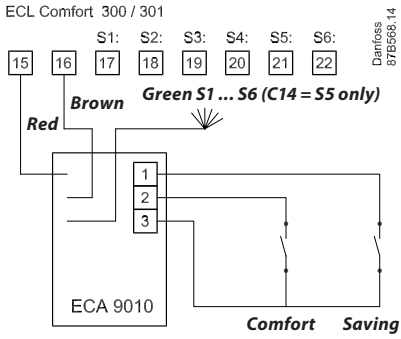
(C14 = 21 only)

Closed switch:
Setback temperature

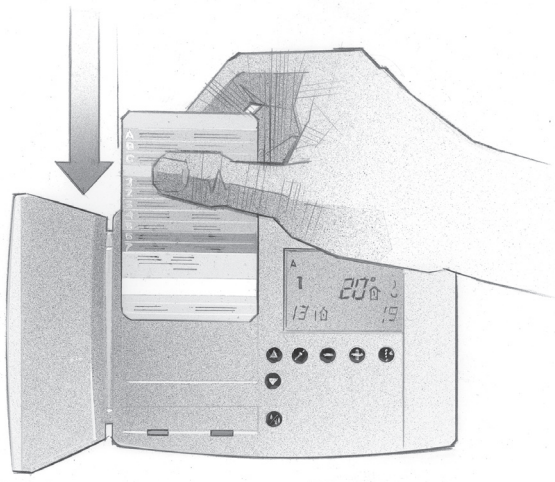
Open switch:
Scheduled operation

Connection example with ECA 9010

The ECA 9010 module is powered by the system device bus, which means that the bus must be active. The bus is activated by setting the controller address to 15 (line 199). To avoid influence from contact resistance, the use of ECA 9010 is recommended.



15a Inserting the ECL Card

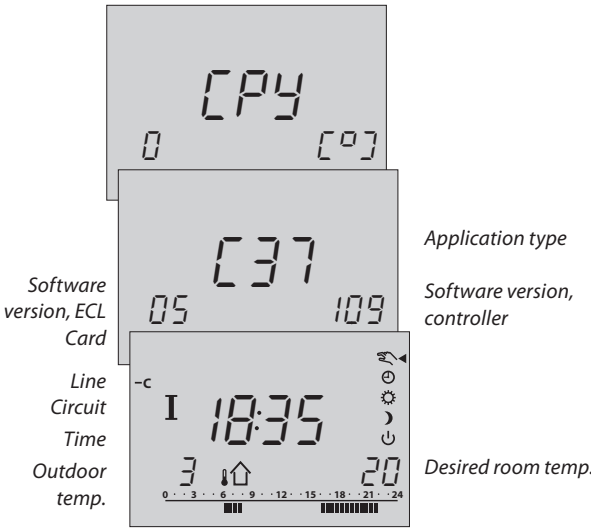


How to insert your ECL Card the first time

After the power has been switched on, open the lid on the front side of the controller.

Place the ECL Card with the yellow side facing you. This enables the controller to read the ECL Card data. The controller immediately starts to copy the application type and factory settings from the ECL Card. After copying, the display will show you the application type. After approx. 10 sec. the display will change to display line C.

Display example:



The controller is now ready to be set to control your system.

If the display keeps showing CPY, see section 34b.

Understanding the ECL Card

The ECL Card contains factory settings for a standard system. If the actual system differs from the standard system, the controller must be adjusted accordingly. After the adjustment, the new settings should be stored on the ECL Card.

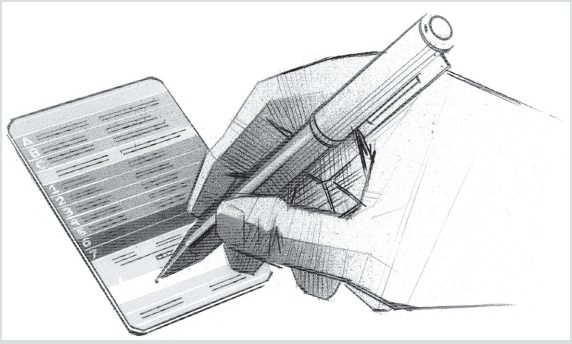
For ECL Card copying and daily use including adjustment of temperatures and schedules, insert the ECL Card with the yellow side facing you.

For system set-up adjustments, the grey side of the ECL Card - the installer's side - must be facing you.

As a main rule, the ECL Card should always remain in the controller during service, maintenance and setting.

If the card is removed or left in the controller with the grey side facing you, please note that:

- After approx. 25 min.:
  - The controller cannot be operated.
  - The controller reverts to display C (section 1).
- The ECL Card must not be exposed to direct heat or sunshine.



If several controllers are installed in the system you can write a title on the ECL Card with a permanent ink pen.

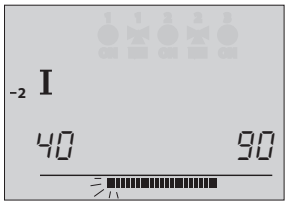
Do not remove the ECL Card while copying. The data on the ECL Card can be damaged!

When you store your personal settings on your ECL Card, the factory settings will be overridden.

16 Adjusting the ECL Card settings

General principles
When the controller is connected and operating you can check and adjust all or some of the basic settings. Turn the ECL Card so that the grey side is facing you (see the example below).

Use the arrow buttons to move from line to line of the ECL Card, for example line 2:



Value in range indicator

Use the plus / minus buttons to adjust the settings.

In some displays more than one setting or value can be adjusted. Use the shift button to switch between the options.

The circuit selector shifts between circuit I and II. You can adjust all settings and service parameters individually.

Update of the ECL Card after maintenance and service
All new settings can be stored on the ECL Card. For details about copying, see section 34.

Setting the time and date - line A

Actual time

Year *Month, day*

Use the shift button to switch between minutes, hours, years, months and days.

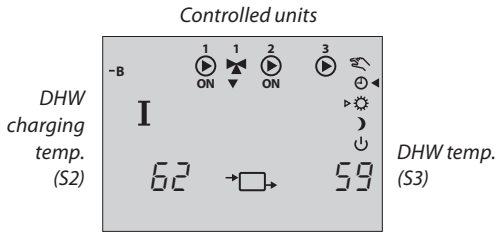
Set the correct time and date.

In case of a power break, which lasts longer than 12 hours, the time and the date have to be set again. All other settings are stored as programmed.

Use the yellow side of the card to change the schedules.

See User's Guide, section 4.

18 Monitoring temperatures and system units - line B



Push and hold the shift button to see:
- the desired DHW charging temperature
- the desired DHW temperature.

The activity of the motorized control valve is shown as arrows below the valve symbol. When the circulation pump is operating, it is indicated as ON below the pump symbol.

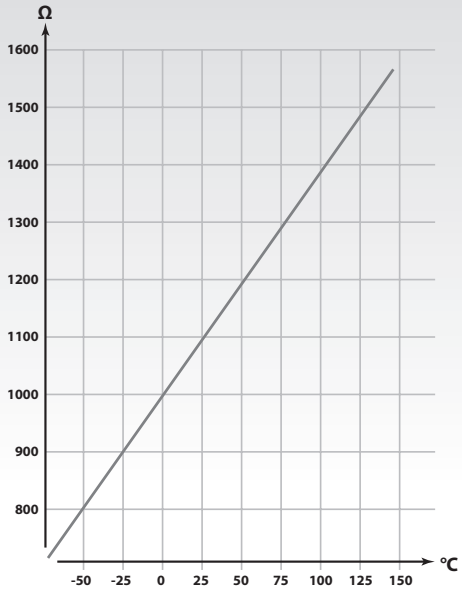
If a sensor is not mounted or is disconnected, the display will indicate it as "- -".

If the sensor is short-circuited, the display will indicate it as "- - -".

If you are in doubt, remove the controller and check the ohmic value between the relevant terminals.

Relationship between temperature and ohmic value

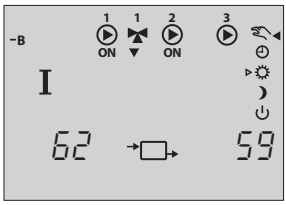
°C	Ω
-50	805
-40	845
-30	883
-20	922
-10	961
0	1000
10	1039
20	1078
30	1117
40	1155
50	1194
60	1232
70	1271
80	1309
90	1347
100	1385
110	1423
120	1462
130	1501
140	1539
150	1578



Manual control - line B

Shift to manual mode.

Controlled units



Controller mode

Choose the unit you want to control. The selected unit symbol will blink.

Controlled units are switched OFF or ON when the relevant button is pushed.

The motorized actuator (gear motor)

closes or opens the controlled unit as long as the relevant button is pushed. If pushed for more than 3 seconds, the actuator continues to close or open the valve.

The thermo actuator

activates the valve as long as the ⊖ button is pushed. If pushed for more than 3 seconds, the actuator continues to open the valve.

Check the activation direction of the actuator either by looking at it or by feeling whether the temperature of the actual pipe changes as expected.

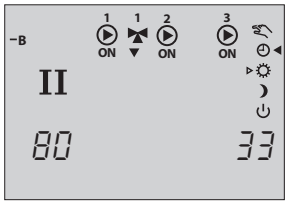
This operation applies to both circuits, if available.

During manual operation, all control functions are deactivated.

20a Monitoring temperatures and system units - line B (circuit II)

Choose circuit II for the readout of the supply and return temperatures.

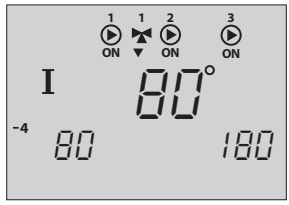
Supply temp. (S1)



Return temp. (S4)

26a Control parameters - lines 4-7

4 Proportional band, Xp		
Circuit	*Setting range*	*Factory setting*
I	**1 ... 250 K**	**80 / 180 K**

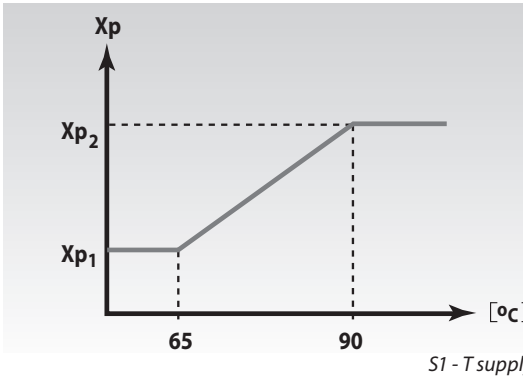


Line Xp_1

Setting to be adjusted Xp_2

Set the proportional band.
A higher value will result in a stable but slow control of the flow temperature.

If you want to adjust the Xp_1 and Xp_2, push the shift button once or twice.



S1 - T supply

Xp is a function of the supply temperature (sensor S1). If a S1 sensor is not connected, the Xp value will equal Xp_1.

5 Integration time, Tn		
Circuit	*Setting range*	*Factory setting*
I	**5 ... 999 sec.**	**30 sec.**

Set a long integration time to obtain a slow but stable reaction to deviations.

A short integration time will make the controller react fast but with less stability

6 Running time of the motorized control valve		
Circuit	*Setting range*	*Factory setting*
I	**5 ... 250 sec.**	**35 sec.**

Set the running time of the motorized control valve according to the example. This is the time it takes the controlled unit to move from fully closed to fully open position.

How to calculate the running time of a motorized control valve

The running time of the motorized control valve is calculated using the following methods:

Seated valves
Running time = Valve stroke (mm) x actuator speed (sec. / mm)
Example: *5.0 mm x 15 sec. / mm = 75 sec.*

Rotating valves
Running time = Turning degrees x actuator speed (sec. / degr.)
Example: *90 degrees x 2 = 180 sec.*

7 Neutral zone, Nz		
Circuit	*Setting range*	*Factory setting*
I	**0 ... 9 K**	**3 K**

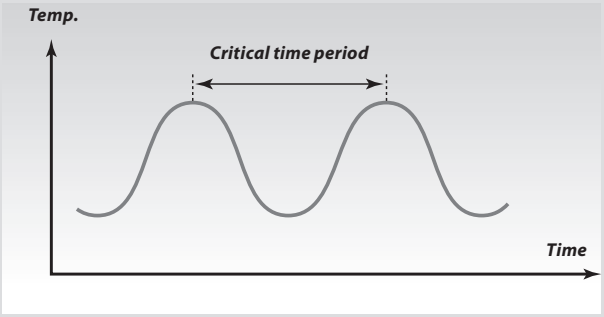
Set the neutral zone to a high value if you can accept a high variation in flow temperature. When the actual flow temperature is within the neutral zone, the controller does not activate the motorized valve.

The neutral zone is symmetrical around the desired flow temperature value, i.e. half the value is above and half the value is below this temperature.

Control parameters (lines 4-7) are overruled if thermo actuator is chosen (OFF).

If you want to tune the PI regulation precisely, you can use the following method:

- Set the integration time (line 5) to its max. value (999 sec.).
- Decrease the value for the proportional band (line 4) until the system starts hunting with a constant amplitude (it might be necessary to force the system by setting an extreme value).
- Find the critical time period on the temperature recording or use a stop watch.



This time period will be characteristic for the system, and you can evaluate the settings from this critical period.

Integration time = 0.85 x critical time period
Proportional band = 2.2 x proportional band value in the critical time period.

If the regulation seems to be too slow, you can decrease the proportional band value by 10%.

Make sure there is a consumption when you set the parameters.

27a Cut-in and cut-out temperature at DHW charging - lines 1-2

The controller can control the DHW temperature with either one or two tank temperature sensor(s). The controller will automatically register the number of sensors.

1 Cut-out temperature difference - (lower sensor)*		
Circuit	*Setting range*	*Factory setting*
I	**1 ... 99 K**	**15 K**
Set the difference between the desired charging temperature and cut-out temperature (charging stop) .		

⊕⊖ Set the difference.

Example:
Desired charging temperature (section 3): 60 °C
Cut-out difference: 15 K

Calculated cut-out temperature (60-15) = 45 °C

2 Cut-in temperature difference - (upper sensor)*		
Circuit	*Setting range*	*Factory setting*
I	**1 ... 99 K**	**20 K**
Set the difference between the desired charging temperature and cut-in temperature (charging start).		

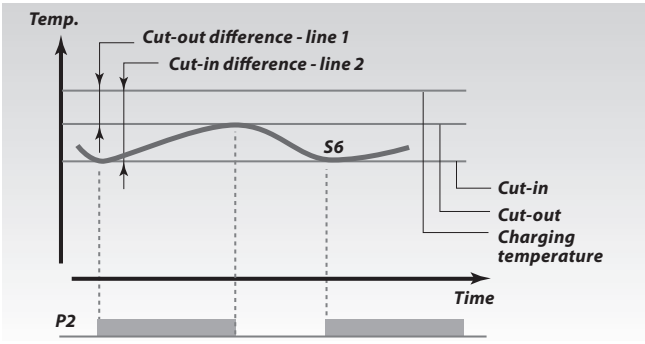
⊕⊖ Set the difference.

Example:
Desired charging temperature (section 3): 60 °C
Cut-in difference: 20 K

Calculated cut-in temperature (60-20) = 40 °C

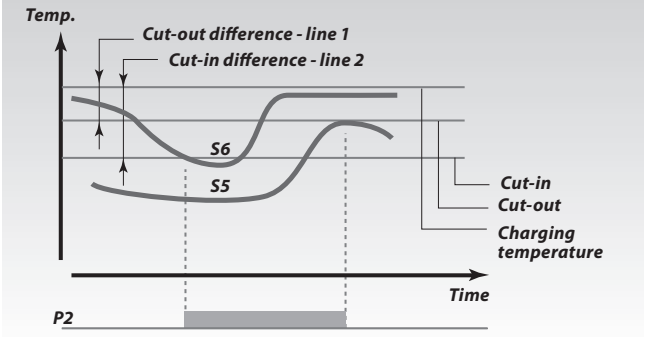
* *In case of two sensors.*

One sensor (S6)



If you only have one sensor installed (S6), this sensor will measure the cut-out temperature as well as the cut-in temperature.

Two sensors (S5 + S6)



The DHW temperature will vary between the cut-in and the cut-out temperatures.

Example:

Cut-in difference:	15 K
Cut-out difference:	20 K
Variation:	5 K

29a Check list

Is the ECL Comfort controller ready for use?

- ☐ Make sure that the correct power supply is connected to terminals 1 (Live) and 2 (Neutral). See section 12 or 13.
- ☐ Check that the required actuators, pumps, fans, dampers and burners are connected to the correct terminals. See sections 12 or 13.
- ☐ Check that all sensors are connected to the correct terminals. See section 14.
- ☐ Mount the controller and switch on the power.
- ☐ Insert the ECL Card with the yellow side facing you and push ⏻, if necessary. See section 15.
- ☐ Choose manual operation as controller mode. See section 2.
- ☐ Check that valves open and close, and that required pumps, fans, dampers and burners start and stop when operated manually. See section 19.
- ☐ Having completed the manual operation check, choose scheduled operation as controller mode.
- ☐ Check that the temperatures shown in display A and B match the actual sensors. See section 1.

Adapting the ECL Comfort controller to the system

- ☐ Turn the ECL Card so that the grey side faces you and push ⓘ, if necessary.
- ☐ Set the time and the date (line A). See section 17.
- ☐ Check that all settings in the controller (sections 30 and 31) are set or that the factory settings comply with your requirements.

If your system differs from the diagram shown on the cover, you should check and alter your service parameters, if necessary.

- ☐ Check that the system settings mentioned in section 10 have been set correctly.

A Time and date — Section 17

B System information — Sections 18 & 19

C

Setting ranges	*Factory settings*	*Your settings*
1		
Cut-out temperature difference		
1 ... 99 K	15 K	
See section 27		
2		
Cut-in temperature difference		
1 ... 99 K	20 K	
See section 27		
3		
4		
Proportional band, Xp		
1 ... 250 K	80 / 180 K	
See section 26		
5		
Integration time, Tn		
5 ... 999 sec.	30 sec.	
See section 26		
6		
Running time of the motorized control valve		
5 ... 250 sec.	35 sec.	
See section 26		
7		
Neutral zone, Nz		
0 ... 9 K	3 K	
See section 26		

A Time and date — Section 17

B System information — Sections 18 & 19

C

Setting ranges	*Factory settings*	*Your settings*
1		
2		
3		
4		
5		
6		
7		

31a Service parameters (10-199)

Circuit I (DHW)

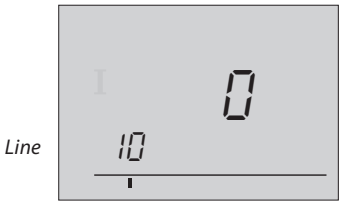
Lines	*Setting ranges*	*Factory settings*	*Your settings*
22	Pump exercise		
	ON / OFF	**ON**	
23	Valve exercise		
	ON / OFF	**ON**	
24	Gear motor / thermo actuator		
	ON / OFF	**ON**	
30	Return temperature limitation, S4		
	10 ... 110 °C	**60 °C**	**°C**
35	Return temperature influence, max.		
	-9.9 ... 0 ... 9.9	**0.0**	
36	Return temperature influence, min.		
	-9.9 ... 0 ... 9.9	**0.0**	
37	Time constant for return temperature limitation		
	OFF / 1 ... 50	**25**	
40	DHW charging pump post-run (P2)		
	0 ... 9 min.	**1 min.**	**min.**
44	Max. DHW charging time		
	0 ... 250 min.	**0 min.**	**min.**
45	DHW charging deactivation time		
	0 ... 250 min.	**0 min.**	**min.**
52	Compensation of heat loss in circulation circuit		
	ON / OFF	**ON**	
54	Activation / deactivation of DHW circulation pump (P3) at anti-bacteria function		
	ON / OFF	**OFF**	
55	Activation / deactivation of DHW circulation pump (P3) during DHW charging		
	ON / OFF	**OFF**	
67	Adaptive function of S2 DHW charging temperature during DHW charging		
	OFF / 1 ... 50	**20**	
78	Desired temperature for anti-bacteria function		
	OFF / 1 ... 100 °C	**OFF**	**°C**
80	Anti-bacteria function period		
	5 ... 250 min.	**120 min.**	**min.**
83	Daily / weekly anti-bacteria function		
	ON / OFF	**ON**	
141	Override input selection		
	OFF / 1 ... 6	**OFF**	
147	Acceptable temperature deviation below desired DHW charging temp.		
	OFF / 1 ...30 K	**OFF**	**K**
148	Acceptable temperature deviation above desired DHW charging temp.		
	OFF / 1 ...30 K	**5 K**	**K**
149	Time interval Δt_{ALARM} before activation of alarm function		
	1 ... 99 min.	**10 min.**	**min.**
152	Max. temperature at S2 during DHW charging		
	10 ... 110	**80**	

Circuit I (DHW)			
Lines	*Setting ranges*	*Factory settings*	*Your settings*
174	Motor protection		
	OFF / 10 ... 59 min.	**OFF**	**min.**
196	Service pin LON		
	ON / OFF	**OFF**	
197	LON reset		
	ON / OFF	**ON**	
198	Daylight saving time changeover		
	ON / OFF	**ON**	
199	Master / slave address		
	0 ... 9, 15	**15**	

32 Adjusting the service parameters

In addition to the settings in line 1 to 7 on the grey side of the ECL Card, there is an extended service menu from line 10 and onwards.

Push repeatedly to reach the lines numbered 10 and onwards.



Range indicator

Now you can move to any line of your choice.

Set the parameter value.

You can select any of the two circuits no matter what line you are in. You will not necessarily enter the same line number. See the service parameters in section 31.

Check that you have entered all the required settings in circuit I - and circuit II, if available.

If you want to copy the new settings to the ECL Card (recommended by Danfoss), see section 34.

Make a note of your new settings in the parameter list in section 31.

When you have entered all your personal settings, turn the ECL Card over so that the yellow side faces you.

22 Pump exercise		
Circuit	*Setting range*	*Factory setting*
I	**ON / OFF**	**ON**
Exercises the pump to avoid blocking in periods without cooling demand.		

ON: The pump is switched ON for 1 minute every third day around noon.

OFF: The pump exercise is not active.

23 Valve exercise		
Circuit	*Setting range*	*Factory setting*
I	**ON / OFF**	**ON**
Exercises the valve to avoid blocking in periods without heat demand.		

ON: The valve receives a signal to open and close every third day around noon.

OFF: The valve exercise is not active.

24 Gear motor / thermo actuator		
Circuit	*Setting range*	*Factory setting*
I	**ON / OFF**	**ON**
Choose the actuator type for your valve.		

ON: Gear motor

OFF: Thermo actuator (ABV type)

Control parameters (lines 4-7) are overruled if thermo actuator is chosen (OFF).

30 Return temperature limitation, sensor S4		
Circuit	*Setting range*	*Factory setting*
I	**10 ... 110 °C**	**60 °C**
Set the limitation temperature at S4.		

Set the limitation temperature.

When the temperature at S4 falls below or gets higher than the set value, the desired DHW charging temperature is changed. The influence is set in lines 35 and 36.

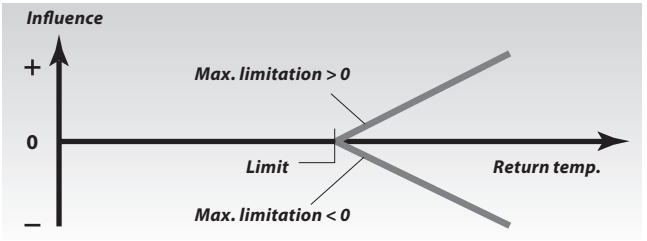
32b Service parameter(s) 35

35 Return temperature influence, max.		
Circuit	*Setting range*	*Factory setting*
I	**-9.9 ... 0 ... 9.9**	**0.0**
Set the influence from the return temperature on the desired DHW charging temperature.		

Set the influence of the max. return temperature (set in line 30).

Influence higher than 0:
The desired DHW charging temperature is increased, when the return temperature gets higher than the set limit.

Influence lower than 0:
The desired DHW charging temperature is decreased, when the return temperature gets higher than the set limit.



Example
The limitation temperature is set to 25 °C.
The influence is set to -2.0.
The actual return temperature is 2 degrees too high.

Result:
The desired DHW charging temperature is changed by -2.0 x 2 = -4 degrees.

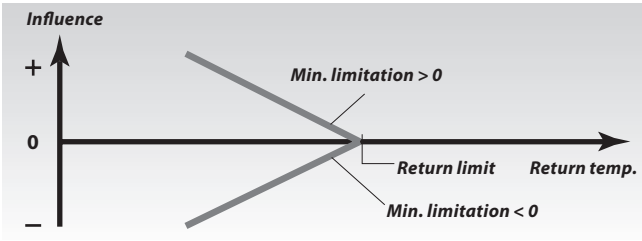
Normally, the setting in line 35 is lower than 0 in district heating systems to avoid a too high return temperature.
Typically, the setting in line 35 is 0 in boiler systems because a higher return temperature is acceptable (see also line 36).

36 Return temperature influence - min. limitation		
Circuit	*Setting range*	*Factory setting*
I	**-9.9 ... 0 ... 9.9**	**0.0**
Set the influence from the return temperature on the desired DHW charging temperature.		

Set the influence of the min. return temperature limitation (set in line 30 or lines 31-34).

Influence higher than 0:
The desired DHW charging temperature is increased, when the return temperature gets below the set limit.

Influence lower than 0:
The desired DHW charging temperature is decreased, when the return temperature gets below the set limit.



Example
The limitation temperature is set to 25 °C.
The influence is set to 2.0.
The actual return temperature is 2 degrees too low.

Result:
The desired DHW charging temperature temperature is changed by 2.0 x 2 = 4 degrees.

Normally, the setting in line 36 is 0 in district heating systems because a lower return temperature is acceptable.
Typically, the setting in line 36 is higher than 0 in boiler systems to avoid a too low return temperature (see also line 35).

32d Service parameter(s) 37-44

37 Time constant for return temperature limitation		
Circuit	*Setting range*	*Factory setting*
I	**OFF / 1 ... 50**	**25**
Controls how fast the actual return temperature adapts to the desired return temperature limitation.		

Adjust the time constant for the return limitation. The setting will eliminate the difference between the acceptable and the actual return temperature.
The difference is integrated to adjust the desired flow temperature.

OFF: The desired flow temperature will not be adjusted any further.

1: The desired flow temperature will be adjusted quickly.

50: The desired flow temperature will be adjusted slowly.

40 DHW charging pump post-run (P2)		
Circuit	*Setting range*	*Factory setting*
I	**0 ... 9 min.**	**1 min.**
The DHW charging pump can continue to run after charging to utilize the remaining heat in the heat exchanger / boiler.		

0: The pump stops immediately after charging.

1 ... 9: The time the pump runs after the charging has ended.

When the DHW charging pump runs after the charging of the DHW tank has stopped, the heat in the exchanger can be utilized to a better extent.

44 Max. DHW charging time		
Circuit	*Setting range*	*Factory setting*
I	**0 ... 250 min.**	**0 min.**
When the set max. DHW charging time expires, the charging is deactivated.		

0: No max. DHW charging time.

1 ... 250:
The charging is deactivated when the set time expires.

45 DHW charging deactivation time		
Circuit	*Setting range*	*Factory setting*
I	**0 ... 250 min.**	**0 min.**
If the charging time has reached its maximum (line 44), the charging is deactivated for the set time.		

0: No deactivation time.

1 ... 250:
When the DHW charging time has reached its maximum, DHW can only be charged again when the deactivation time has expired.

52 Compensation of heat loss in circulation circuit		
Circuit	*Setting range*	*Factory setting*
I	**ON / OFF**	**ON**
Choose to compensate for the heat loss of the circulation circuit.		

ON: The circulation circuit is kept warm by the storage tank.
The motorized control valve (M1) is closed.

OFF: The circulation circuit is kept warm by the heat exchanger.
The motorized control valve (M1) is active to keep the charging temperature constant.

54 Activation / deactivation of DHW circulation pump (P3) at anti-bacteria function		
Circuit	*Setting range*	*Factory setting*
I	**ON / OFF**	**OFF**
At anti-bacteria function, the pump can be deactivated independently of the schedule.		

ON: The pump always operates according to schedule II.

OFF: The pump is deactivated at anti-bacteria function, independently of the schedule.

55 Activation / deactivation of DHW circulation pump (P3) during DHW charging		
Circuit	*Setting range*	*Factory setting*
I	**ON / OFF**	**OFF**
At DHW charging, the pump can be deactivated independently of the schedule.		

ON: The pump always operates according to schedule II.

OFF: The pump is deactivated at DHW charging, independently of the schedule.

32f Service parameter(s) 67

67 Adaptive function of S2 DHW charging temperature during DHW charging		
Circuit	*Setting range*	*Factory setting*
I	**OFF / 1 ... 50**	**20**
The setting will eliminate the difference between the desired DHW charging temperature (S2) and the DHW temperature (S3) by integrating the difference and adjusting the desired S2 flow temperature.		

OFF: The desired DHW charging temperature will not be adjusted any further.

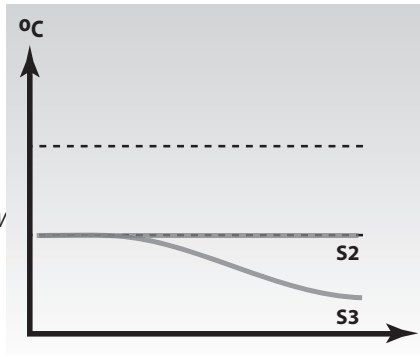
1: The desired DHW charging temperature will be adjusted quickly.

50: The desired DHW charging temperature will be adjusted slowly.

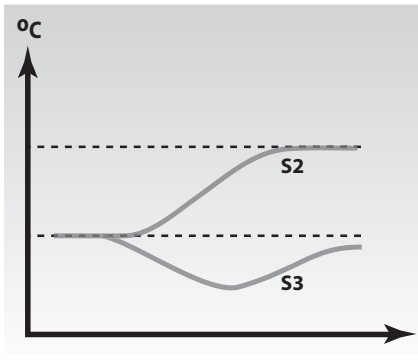
By setting a value (1 … 50) in line 67, the S2 temperature is increased gradually to ensure a correct DHW temperature (S3).

When looking in the menu B, the desired charging temperature (at S2) will be higher than the value for the desired charging temperature, set in menu C (yellow side). This can indicate that the heat exchanger is not transferring the heat in an optimal way (limescale).

Line 67 = OFF



Line 67 > OFF



For max. temperature at S2 during DHW charging, see also line 152.

78 Desired temperature for anti-bacteria function		
Circuit	*Setting range*	*Factory setting*
I	**OFF / 1 ... 100 °C**	**OFF**
Set the desired temperature for the anti-bacteria function. The DHW will be charged daily or once a week at the set temperature to protect against bacteria. The function is always active on Mondays from 00:00 and the DHW is charged according to the period set in line 80.		

OFF: The anti-bacteria function is not active.

1 ... 100:
The anti-bacteria function is active at the desired temperature.

80 Anti-bacteria function period		
Circuit	*Setting range*	*Factory setting*
I	**5 ... 250 min.**	**120 min.**
Set the period for the anti-bacteria function. When the set time expires, the anti-bacteria function is stopped.		

5 ... 250:
The anti-bacteria function is active for the set period.

The function is activated in line 78 by setting the desired anti-bacteria temperature.

83 Daily / weekly anti-bacteria function		
Circuit	*Setting range*	*Factory setting*
I	**ON / OFF**	**ON**
Choose whether the anti-bacteria function is to be active daily or weekly.		

ON: The anti-bacteria function is active once a day (from 00:00).

OFF: The anti-bacteria function is active once a week (Mondays from 00:00).

32h Service parameter(s) 141

141 Override input selection		
Circuit	*Setting range*	*Factory setting*
I	**OFF / 1 ... 6**	**OFF**
Choose an unused temperature sensor input for overriding the schedule for circuit I and / or circuit II.		

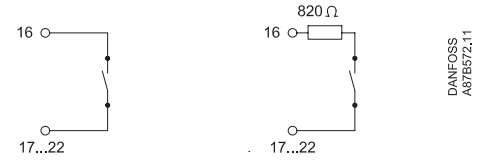
The override can be activated for comfort or setback mode. For override the controller's mode must be in 'scheduled operation'!

OFF: The controller's schedule is not overridden.

1 ... 6: Select an unused sensor input S1 ... S6 for the override of the circuit in question.

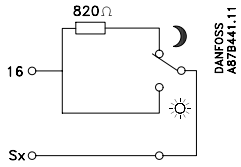
Connection example

If the override switch has gold-plated contacts, you can choose one of the following solutions:



Closed switch: Comfort temperature

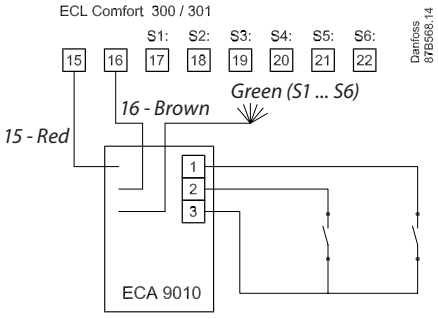
Closed switch: Setback temperature



Changeover switch: Setback or comfort temperature

Connection example with ECA 9010

(used if the override switch does not have gold-plated contacts).

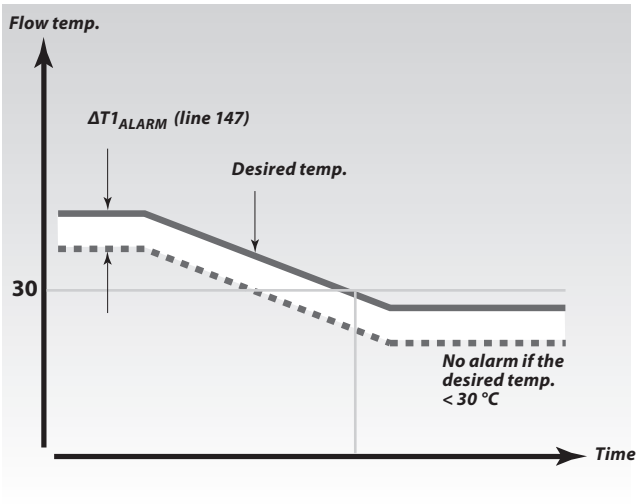


The ECA 9010 module is powered by the system device bus, which means that the bus must be active. The bus is activated by setting the controller address to 15 (line 199).

147 Acceptable temperature deviation below desired DHW charging temperature ($\Delta T1_{ALARM}$)		
Circuit	*Setting range*	*Factory setting*
I	**OFF / 1 ... 30 K**	**OFF**
The alarm is activated if the actual DHW charging temperature drops too much below the desired temperature. The max. deviation $\Delta T1_{ALARM}$ is set here. This condition must last longer than the time interval Δt_{ALARM} (line 149). See also line 148.		

⊕⊖ **OFF:** The alarm function and the alarm relay of the additional module ECA 80 are not active.

1 ... 30:
The alarm function is active if the actual temperature falls below the acceptable deviation.

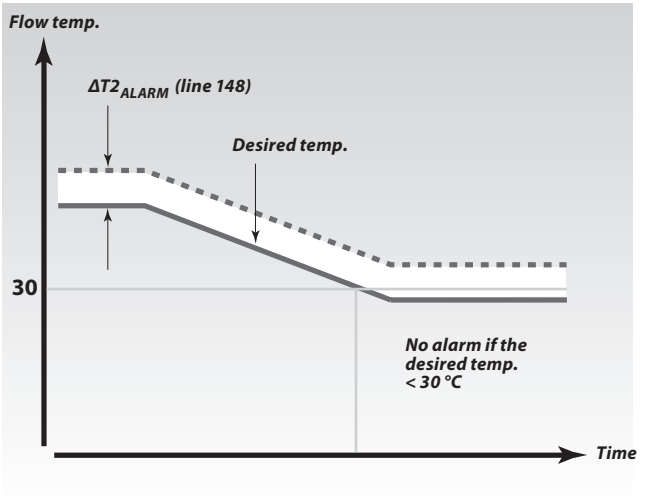


The alarm signal can only be sent via the module ECA 80.

32j Service parameter(s) 148

148 Acceptable temperature deviation above the desired DHW charging temperature ($\Delta T2_{ALARM}$)		
Circuit	*Setting range*	*Factory setting*
I	**1 ... 30 K**	**5 K**
The alarm is activated if the actual DHW charging temperature rises too much above the desired temperature. The max. deviation $\Delta T2_{ALARM}$ is set here. *This condition must last longer than the time interval Δt_{ALARM} (line 149).* *This alarm can only be activated if the value in line 147 is set to 1 ... 30 K.*		

⊕⊖ **1 ... 30**: The alarm function is active if the actual temperature rises above the acceptable deviation.

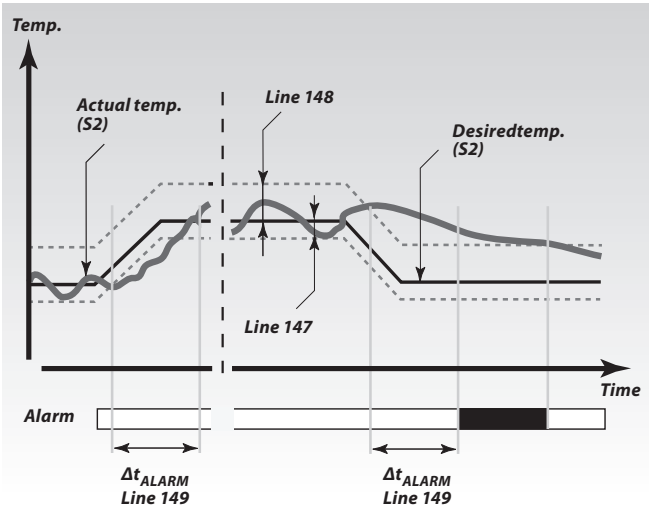


The alarm signal can only be sent via the module ECA 80.

Extended service

149 Time interval Δt_{ALARM} before activation of alarm function		
Circuit	*Setting range*	*Factory setting*
I	**1 ... 99 min.**	**10 min.**
If an alarm condition from either line 147 or 148 is present for a longer time than the time interval Δt_{ALARM}, the alarm function is activated.		

⊕⊖ **1 ... 99:** Time interval Δt_{ALARM}.



If you choose OFF in line 147, the alarm function in lines 148 and 149 is not activated.

The alarm signal can only be sent via the module ECA 80.

152 Max. temperature at S2 during DHW charging		
Circuit	*Setting range*	*Factory setting*
I	**10 ... 110**	**80**
The desired DHW charging temperature at S2 is limited to the set value.		

⊕⊖ Set the max. acceptable temperature at sensor S2.

174 Motor protection		
Circuit	*Setting range*	*Factory setting*
I	**OFF / 10 ... 59 min.**	**OFF**
Prevents the controller from unstable temperature control (and resulting actuator oscillations). This can occur when there is no DHW tapping, i.e. when the load is only due to the DHW circulation, or when the heating demand in the heating circuit is very low. The motor protection increases the lifetime of all involved components.		

OFF: Motor protection is not activated.

10 ... 59:
Motor protection is activated after the set activation delay.

A high value should be used for DHW installations with many consumers.

196 Service pin - LON		
Circuit	*Setting range*	*Factory setting*
I	**ON / OFF**	**OFF**
This setting is only used in connection with LON communication (see the documentation for the used communication unit).		

197 LON reset		
Circuit	*Setting range*	*Factory setting*
I	**ON / OFF**	**ON**
This setting is only used in connection with LON communication (see the documentation for the used communication unit).		

198 Daylight saving time changeover		
Circuit	*Setting range*	*Factory setting*
I	**ON / OFF**	**ON**
Choose whether you want the change to summer / winter time to be automatic or manual.		

ON: The controller's built-in clock automatically changes + / - one hour on the standardized days for daylight saving time changeover for Central Europe.

OFF: You change manually between summer and winter time by setting the clock backward or forward.

199 Master / slave address		
Circuit	*Setting range*	*Factory setting*
I	**0 ... 9, 15**	**15**
The setting is relevant when more controllers are working in the same ECL Comfort system (connected via the system device bus (ECL Comfort BUS)).		

0: The slave receives information about the system time.

1 ... 9: The slave receives information about the system time.

The slave sends information about the desired flow temperature (at S2) to the master.

15: The controller is master. The master sends information about the system time.

The master receives the desired flow temperature information from the slaves with addresses 1 ... 9.

The bus is active and connected ECAs (max. 2) are powered.

The ECL Comfort controllers can be connected via the bus to perform a larger system.

Each slave must be configured with its own address (1 ... 9).

However, more slaves can have the address 0 if they only have to receive information about compensation temperature and system time.

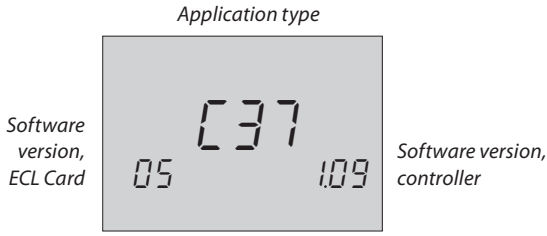
The settings 10 ... 14 are not to be used.

34a Copying with the ECL Card

Check the ECL Card and the software generations (see following example).

Insert the ECL Card with the yellow side facing you.

Go to line 8 (is not displayed), which is the first line below line 7.



Store new controller settings on the ECL Card

All new settings* can be stored on the ECL Card. Insert the ECL Card with the yellow side facing you.

Go to line 9 (is not displayed), which is the second line below line 7.

Accept to copy settings from controller to ECL Card.

When the copying is finished, the controller returns to display line C.

* *Time and date settings are not stored on the ECL Card.*

Do not remove the ECL Card while copying. The data on the ECL Card can be damaged!

If you have copied your personal settings to the ECL Card, you cannot restore the factory settings!

The yellow side of the ECL Card

Copy personal settings to additional controller(s) in identical systems

Ensure that the other controller(s) use(s) the same ECL Card type. (If this is not the case, please read section 15).

Insert the ECL Card, which contains the personal settings, with the yellow side facing you.

Go to line 9 (is not displayed), which is the second line below line 7.

Select the copying direction (from the card to the controller).

Copy.

Store new ECL Card application in the controller

If you insert an ECL Card with another application type, it is necessary to copy it to your controller.

Insert the ECL Card with the yellow side facing you. The controller will keep showing CPY.

Copy.

Do not remove the ECL Card while copying. The data on the ECL Card can be damaged!

7a Definitions

Air duct temperature
Temperature measured in the air duct where the temperature is to be controlled.

Balance temperature
This setpoint is the basis for the flow / air duct temperature. The balance temperature can be adjusted by the room temperature, the compensation temperature and the return temperature. The balance temperature is only active if a room temperature sensor is connected.

Comfort operation
Normal temperature in the system controlled by the schedule. During heating the flow temperature in the system is higher to maintain the desired room temperature. During cooling the flow temperature in the system is lower to maintain the desired room temperature.

Comfort temperature
Temperature maintained in the circuits during comfort periods. Normally during daytime.

Compensation temperature
A measured temperature influencing the flow temperature reference / balance temperature.

Controller mode indicator
Black arrow to the right of the symbols indicating the present mode.

Desired room temperature
Temperature which is set as the desired room temperature. The temperature can only be controlled by the ECL Comfort controller if a room temperature sensor is installed.
If a sensor is not installed, the set desired room temperature however still influences the flow temperature.
In both cases the room temperature in each room is typically controlled by radiator thermostats / valves.

Desired temperature
Temperature based on a setting or a controller calculation.

Dew point temperature
Temperature at which the humidity in the air condensates.

Factory settings
Settings stored on the ECL Card to simplify the set up of your controller the first time.

Flow temperature
Temperature measured in the flow at any time.

Flow temperature reference
Temperature calculated by the controller on basis of the outdoor temperature and influences from the room and / or return temperatures. This temperature is used as a reference for the control.

Heating circuit
The circuit for heating the room / building.

Heating curve
A curve showing the relationship between actual outdoor temperature and required flow temperature.

DHW circuit
The circuit for heating the domestic hot water (DHW).

Humidity, relative
This value (stated in %) refers to the indoor moisture content compared to the max. moisture content. The relative humidity is measured by the ECA 62 / 63 and is used for the calculation of the dew point temperature.

Limitation temperature
Temperature that influences the desired flow / balance temperature.

Pt 1000 sensor
All sensors used with the ECL Comfort controller are based on the Pt 1000 type. The resistance is 1000 ohm at 0 °C and it changes with 3.9 ohm / degree.

Optimization
The controller optimizes the start time of the scheduled temperature periods. Based on the outdoor temperature, the controller automatically calculates when to start in order to reach the comfort temperature at the set time. The lower the outdoor temperature, the earlier the start time.

Return temperature
The temperature measured in the return influences the desired flow temperature.

Room temperature sensor
Temperature sensor placed in the room (reference room, typically the living room) where the temperature is to be controlled.

Room temperature
Temperature measured by the room temperature sensor, room panel or remote control. The room temperature can only be controlled directly if a sensor is installed. The room temperature influences the desired flow temperature.

Schedule
Schedule for periods with comfort and setback / saving temperatures. The schedule can be made individually for each week day and may consist of up to 3 comfort periods per day.

Setback / saving temperature
Temperature maintained in the heating / DHW circuit during setback temperature periods.

State / mode indicators
White arrow to the left of the symbols (sun / moon). The white arrow indicates the present state, comfort (sun) or setback / saving (moon), when the controller is in scheduled operation mode.
The black arrow symbol indicates the mode of the controller.

Time line / bar
Line with numbers representing the hours. Below the time line, time bars represent scheduled periods with comfort temperature. The bar is divided into half hour sections.

Weather compensation
Flow temperature control based on the outdoor temperature. The control is related to a user-defined cooling curve.

The definitions apply to the Comfort 200 as well as ECL Comfort 300 series. Consequently, you might come across expressions that are not mentioned in your guide.

6a Hot points

The time shown in the display is one hour off?
See the summer time changeover in line 198, section 32.

The time shown in the display is not correct?
The internal clock may have been reset, if there has been a power break for more than 12 hours.
Set time and date.
See section 17.

The ECL Card is lost?
Switch the power off and on again to see the system type and the software generation of the controller.
Order a replacement from your Danfoss representative.
Insert the new ECL Card with the yellow side facing you and make sure that you copy your personal settings from the controller to the ECL Card.
See section 34.

The room temperature is too low?
Make sure that the radiator thermostat does not limit the room temperature.
If you still cannot obtain the desired room temperature by adjusting the radiator thermostats, the flow temperature is too low. Increase the desired room temperature (section 3). If this does not help, adjust the heating curve / balance temperature (section 20).

The room temperature is too high during saving periods?
Make sure that the max. flow temperature limitation is not too low. See section 22.

The temperature is unstable?
Check that the flow temperature sensor is correctly connected and in the right place. Adjust the control parameters (section 26).
If the controller has a room temperature signal, see section 23.

The controller does not operate and the control valve is closed?
Check that the flow temperature sensor is measuring the correct value, see section 1.
Check the influence from other measured temperatures.

How to make an extra comfort period in the schedule?
You can make an additional comfort period by pushing the shift and + buttons simultaneously for 2 seconds.
See section 4.

How to remove a comfort period in the schedule?
You can remove a comfort period by pushing the shift and - buttons simultaneously for 2 seconds.
See section 4.

How to restore your personal settings?
Insert the ECL Card with the yellow side facing you. Go to line 9 (is not displayed), which is the second line below line 7. Select copy direction 'card to controller' (left to right) by using the shift button. Push the + button to copy.
See section 5.

This is a collection of frequently asked questions for the ECL Comfort 200 as well as ECL Comfort 300 series. Consequently, you might come across some questions that do not apply to your application.

5a Advantages of the ECL Card

Save your personal settings to the ECL Card

Go to line 9 (is not displayed), which is the second line below line 7.

Accept to copy personal settings from the controller to the ECL Card.

The controller will return to display line C when the copying is completed. This takes approx. 15 seconds.
By saving your personal settings* to the ECL Card, you have ensured that your settings will not be lost if the controller settings are changed by mistake.

* Time and date settings are not stored on the ECL Card.

Prevent unauthorized operation

One of the primary advantages of the controller is the setting security.
If you remove the ECL Card, and the ECL Comfort controller is not operated during the next 25 minutes (approx.):
- the controller returns to display line C (section 1)
- further changes are not possible
- the controller continues its operation

When the ECL Card is inserted with the yellow side facing you, the controller can be operated again.

Do not remove the ECL Card while copying. The data on the ECL Card can be damaged!

If you have copied your personal settings to the ECL Card, you cannot restore the factory settings!

The yellow side of the ECL Card

Restore ECL Card data

After establishing your favorite temperatures, comfort periods etc., and after copying these to the ECL Card, you can set alternative settings.

Insert the ECL Card and make the temporary settings, e.g. for holidays, but do not copy these. To restore your favorite settings, copy these from the ECL Card to the controller. Insert the ECL Card.

Go to line 9 (is not displayed), which is the second line below line 7.

Choose to copy the ECL Card to the controller (from left to right).

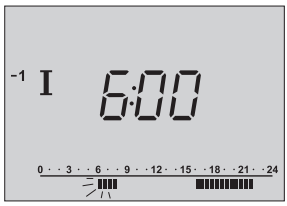
Copy

Do not remove the ECL Card while copying. The data on the ECL Card can be damaged!

4a Set your personal schedule

Monitor the current schedules

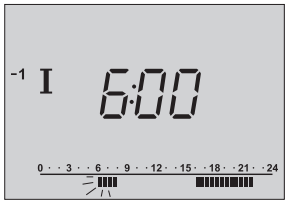
Select between lines 1-7 (Monday, Tuesday ..... Sunday) to see your individual schedules.



Periods with comfort temp. are shown as black bars

Change the schedules

Select appropriate day.



The changeover point blinks

Adjust the first blinking changeover point, if required. The end of the bar moves, extending or reducing the comfort period.

Shift to next changeover point and adjust accordingly.

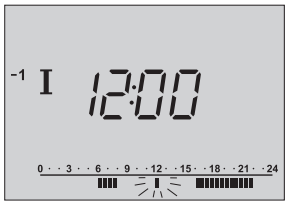
Change the schedule for circuit II

Select circuit II to view or change the schedule. Use the same method for changes as for circuit I.

The yellow side of the ECL Card

Add an extra comfort period

Push the shift and + button simultaneously for 2 seconds.



The new period appears

Adjust the new period.

Remove a comfort period

Select the period to be removed (blinking changeover point)

Push shift and - buttons simultaneously for 2 seconds.

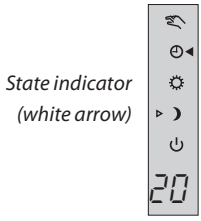
Cancel changes in your personal settings

Push - and + buttons simultaneously for 2 seconds to restore the factory settings of the actual schedule.

2 Select circuit mode

During scheduled operation (clock), the state indicator (a white arrow) will show you the control mode of the selected circuit.

The mode can be set differently for each circuit by means of the function selector. However, if manual operation (hand) is chosen, this mode will apply to all circuits.



Function selector. Push the button to change the mode of the circuit. The black arrow shows you which of the modes you have chosen.

What do the symbols mean?

Manual operation
Used only at maintenance and service.

Scheduled operation
This is the normal mode. The temperature is controlled according to your schedule with automatic changeover to / from comfort and saving temperature periods.

Constant comfort temperature
The schedule is not in operation. Use this mode when a constant comfort temperature is desired.

Constant saving temperature
The schedule is not in operation. Use this mode when you are away on holiday, etc.

Standby
The circuit is stopped.

Set your DHW charging temperature

Choose the display C for daily operations.

Circuit I:
Setting the desired DHW charging temperature

Desired DHW temp. in comfort mode

Desired DHW temp. in setback mode

Select the constant comfort mode.

Set the desired DHW temperature for the comfort mode.

Select the constant setback mode.

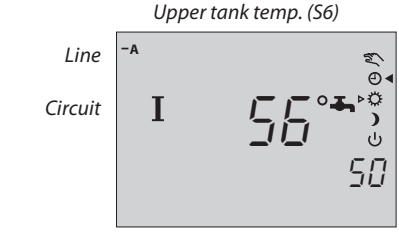
Set the desired DHW temperature for the setback mode.

Select the desired mode (section 2).

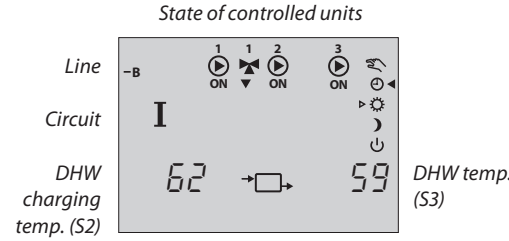
1a Choose your favorite display (circuit I)

Choose the display - A, B, or C - for daily operations.

DHW temperature - display A

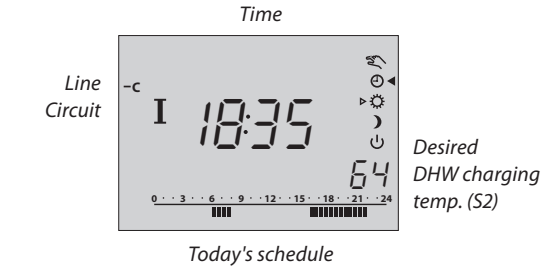


System information - display B



Push and hold the shift button to see:
- the desired DHW charging temperature
- the desired DHW temperature.

Today's schedule - display C



The controller automatically reverts to display C if the card has been reinserted or the power supply has been interrupted.

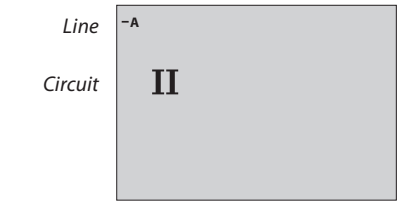
If the temperature value is displayed as "- -", the sensor in question is not connected. "- - -" means that the sensor is short-circuited.

The yellow side of the ECL Card

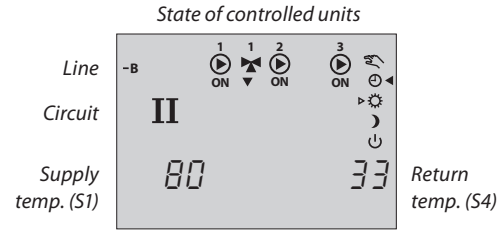
Choose your favorite display (schedule II)

Choose the display - A, B, or C - for daily operations.

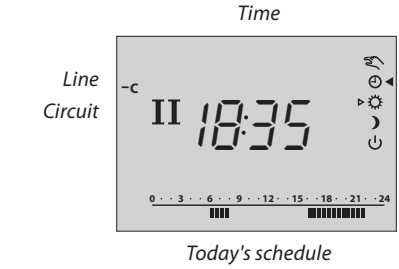
Display A



System information - display B



Today's schedule - display C



The controller automatically reverts to display C if the card has been reinserted or the power supply has been interrupted.

If the temperature value is displayed as "- -", the sensor in question is not connected. "- - -" means that the sensor is short-circuited.

Save energy - save money - improve your comfort temperature

The ECL Comfort controller is designed by Danfoss for the automatic temperature control of heating, hot-water, ventilation and cooling systems.

Some of the advantages of the ECL Comfort controller system are:

- Secure control and the optimum use of energy resources.
- Control of system temperatures according to seasonal changes and variations in outdoor temperatures.
- Setback temperature periods and low energy consumption while you are out or asleep save heating costs.

Operating the ECL Comfort controller in general

When operating the controller it is advisable to keep the lid open in order to view the entire display.
During operation the ECL Card must be inserted with the yellow side facing you.
The ECL Card, which is equipped with a memory chip, is simple and easy to handle.
The ECL Card is divided vertically into two columns each representing a circuit.
Horizontally the ECL Card is divided into lines that represent the different control and programming options for the two circuits. Each line is shown in the display of the controller, which gives you an instant overview of the operation, settings etc.

How to use the ECL Comfort User's Guide

This guide provides you with an easy instruction for the ECL Comfort controller.
The Installer's Guide, the grey section (turn the guide over), contains the complete list of factory settings and various detailed adjustments that ensure an efficient and continuous operation of your system.

Table of Contents

Daily use

Section

1 Choose your favorite display

2 Select circuit mode

3 Set your DHW charging temperature

4 Set your personal schedule

5 Advantages of the ECL Card

6 Hot points

7 Definitions

The documentation for the ECL Comfort controller is composed of numbered sections. Only sections that are relevant to your ECL Comfort controller are included here.

Installer's Guide:
Grey sections 10 and onwards. Turn the guide over.

Your personal schedule:

	0	3	6	9	12	15	18	21	24
			6-8				*16-22*		
DHW									
1 Monday									
2 Tuesday									
3 Wednesday									
4 Thursday									
5 Friday									
6 Saturday									
7 Sunday									
				8-23					

	0	3	6	9	12	15	18	21	24
			6-8				*16-22*		
Schedule II									
1 Monday									
2 Tuesday									
3 Wednesday									
4 Thursday									
5 Friday									
6 Saturday									
7 Sunday									
				8-23					

Factory settings are grey.

The functions can only be realized with ECL Comfort 300 and as of controller version 1.08.